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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,853	07/15/2003	Karen L. Noel	200308870-1	7585

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EXAMINER
PANTOLIANO JR, RICHARD

ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/619,853	NOEL ET AL.
	Examiner	Art Unit	
	Richard Pantoliano Jr	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *20030715*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This is the initial office action for Application# **10/619,853** filed on **15 July 2003**.

Claims 1-20 are currently pending and have been considered below.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   **Claims 1, 3, 4 and 12-14** are rejected under 35 U.S.C. 102(e) as being

anticipated by <u>McDonald</u> (PG Pub: 2003/0088608).

Claim 1: <u>McDonald</u> discloses the method comprising:

a) determining, by a first program, an attribute of a first functional unit by

referencing a virtual memory address, the first functional unit comprising a first

processor and a random access memory (RAM) coupled to the first processor in a

computer system, and the first program executing in the first functional unit *([0033],*

[0053] and Figure 5) (The control blocks contain the identifier of the processor to which

it was assigned. Since a Scalable Coherent Interface(SCI) is used to make local

memory appear as though it were a part of memory for the entire system, the address

used to describe the total system memory is a virtual address that must be converted to

a local address);

b) determining, by a second program, an attribute of a second functional unit by referencing the virtual memory address, the second functional unit comprising a second processor and a RAM coupled to the second processor in the computer system, and the second program executing in the second functional unit; and wherein the referencing the virtual memory address by the first program provides a pointer to an attribute stored in the RAM of the first functional unit *([0033], [0053] and Figure 5) (The control blocks contain the identifier of the processor to which it was assigned. Since a Scalable Coherent Interface(SCI) is used to make local memory appear as though it were a part of memory for the entire system, the address used to describe the total system memory is a virtual address that must be converted to a local address);* and

c) wherein the referencing the virtual memory address by the second program provides a pointer to an attribute stored in the RAM of the second functional unit *([0053] and Figure 5) (The control blocks contain the identifier of the processor to which it was assigned. In accessing this information by the dispatcher, the address of or "pointer" to that control block is stored within a register.).*

Claim 3: <u>McDonald</u> discloses the method of **Claim 1**, wherein determining an attribute of the first functional unit further comprises determining a functional unit identification number *([0033], [0053] and Figure 5) (The control blocks contain the identifier of the processor to which it was assigned. Since <u>McDonald</u> cites the use of the Scalable Coherent Interface(SCI) standard in connecting the components, and SCI*

uses ID numbers to identify the devices being connected, it is inherent that the fields in

the control blocks indicate unique processor identification numbers).

Claim 4: <u>McDonald</u> discloses the method of **Claim 1**, wherein determining an

attribute of the first functional unit further comprises determining low and high physical

address of the RAM of the first functional unit *([0017] and [0036]) (Threads are*

dispatched to processors based partially on what is contained in memory attached to

the processor. Since the address space of all of the memory units in the system is

shared, the low and high address of each of those units must be known to allow for a

determination as to which attached processor the thread should be scheduled).

Claim 12: <u>McDonald</u> discloses a computer readable medium ([0076]) containing

an executable program that, when implemented, implements the method comprising

reading a functional unit identifier from a random access memory (RAM) coupled to a

program in which the program executes *([0053] and Figure 5) (The control blocks are*

stored in memory and contain the identifier of the processor to which it was assigned).

Claim 13: <u>McDonald</u> discloses the computer readable medium of **Claim 12**

wherein the executable program further comprises allocating memory from RAM within

the functional unit. *([0012] and [0032]) (The operating system allocates necessary*

memory in the storage attached to the processor).

Claim 14: <u>McDonald</u> discloses the computer readable medium of **Claim 12**

wherein the executable further comprises scheduling a program to execute on the

processor in the functional unit *([0020], [0052] and [0053]) (The control block contains*

"ideal processor" information for the thread, which is used in determining to which

processor the thread should be sent).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over

<u>McDonald</u> (PG Pub: 2003/0088608) in view of <u>Boyce</u> (<u>Windows 2000 Quick Fixes</u>

O'Reilly Publishing, 2000).

<u>McDonald</u> discloses the system of **Claim 1**, but does not disclose detecting the

Input/Output devices attached to the first functional unit. However, <u>McDonald</u> does

disclose the use of Windows 2000 in NUMA systems. Boyce discloses that the device

manager in Windows 2000 can display a hierarchical listing of connections between

devices and that said functionality was included in previous versions of the Windows

operating system. It would have been obvious to take said functionality of the Windows

2000 device manager and incorporate it into <u>McDonald's</u> to one of ordinary skill in the

art because it was a technique that was old and well-known in the art.

6.   **Claims 2, 6-11, and 15-20** are rejected under 35 U.S.C. 103(a) as being

unpatentable over <u>McDonald</u> (PG Pub: 2003/0088608) in view of <u>Suzuki</u> (US Pat:

6,09,157).

Claim 2: <u>McDonald</u> discloses the method of **Claim 1**, and further discloses

replicating a portion of an operating system into a portion of RAM for both functional

units *([0043])*. <u>McDonald</u> does not disclose the copying of said operating system

portion or the attribute information to a read-only portion of RAM.

<u>Suzuki</u> teaches the use of read-only portions of RAM to store program code

(Column 5, Lines 52-62). Since an operating system is a program, it would have been

obvious to one of ordinary skill in the art that said operating system code should be

stored in this read-only area. One would have been motivated by the fact that it is old

and well-known in the art that program code should be stored in read-only regions of

memory to ensure that no intentional or unintentional corruption of the operating system

code takes place.

Since the attribute information does not need to be altered in the process of

determining to which processor the thread should be sent, the attribute information

could also be copied to the read-only area of the RAM. It would have been obvious to

one of ordinary skill in the art to so do because it is old and well-known in the art that, by

placing the operating system code and the data which that code will analyze directly

adjacent to one another in memory, accessing that information would be more efficient

than accessing memory not in adjacent locations.

Claims 6 and 15: <u>McDonald</u> discloses a system comprising:

a) a first means for executing programs coupled to a first means for storing

programs and instructions *(<u>McDonald</u>, [0033]-[0036] and Figures 1 and 2)*;

b) a second means for executing programs coupled to a second means for

storing programs and instructions *(<u>McDonald</u>, [0033]-[0036] and Figures 1 and

2)*; and

c) copying a portion of the operating system to the first and second storage

means *(<u>McDonald</u>, [0043])*.

McDonald does not disclose the copying of said operating system portion

or the attribute information to a read-only portion of either storage means.

<u>Suzuki</u> teaches the use of read-only portions of a storage means (RAM) to store

program code *(<u>Suzuki</u>, Column 5, Lines 52-62)*. Since an operating system is a

program, it would have been obvious to one of ordinary skill in the art that said

operating system code should be stored in this read-only area. One would have been

motivated by the fact that it is old and well-known in the art that program code should be

stored in read-only regions of memory to ensure that no intentional or unintentional

corruption of the operating system code takes place.

Since the attribute information does not need to be altered in the process of

determining to which processor the thread should be sent, the attribute information

could also be copied to the read-only area of the RAM. It would have been obvious to

one of ordinary skill in the art to so do because it is old and well-known in the art that, by

placing the operating system code and the data which that code will analyze directly

adjacent to one another in memory, accessing that information would be more efficient

than accessing memory not in adjacent locations.

Claims 7 and 16: McDonald and Suzuki disclose the systems of **Claim 6** and of

Claim 15, with McDonald further disclosing the reading of the attributes of the first and

second units being accomplished by referencing virtual memory addresses *([0033],*

[0053] and Figure 5) (The control blocks contain the identifier of the processor to which

it was assigned. Since a Scalable Coherent Interface(SCI) is used to make local

memory appear as though it were a part of memory for the entire system, the address

used to describe the total system memory is a virtual address that must be converted to

a local address).

Claims 8 and 17: McDonald and Suzuki disclose the systems of **Claim 6** and of

Claim 15, with McDonald further disclosing:

a) the attribute of the first functional unit being a functional unit identifier *([0033],*

[0053] and Figure 5) (The control blocks contain the identifier of the processor to which

it was assigned. Since McDonald cites the use of the Scalable Coherent Interface(SCI)

standard in connecting the components, and SCI uses ID numbers to identify the

devices being connected, it is inherent that the fields in the control blocks indicate

unique processor identification numbers); and

b) wherein the operating system program determines the functional unit within which it is executed by reading the functional unit identifier *([0033], [0053] and Figure 5) (The control blocks contain the identifier of the processor to which it was assigned and is read by the operating system's dispatcher process).*

Claims 9 and 18: McDonald and Suzuki disclose the systems of **Claim 6** and of **Claim 15**, with McDonald further disclosing the attribute of the first functional unit being a functional unit identifier *([0033], [0053] and Figure 5) (The control blocks contain the identifier of the processor to which it was assigned. Since McDonald cites the use of the Scalable Coherent Interface(SCI) standard in connecting the components, and SCI uses ID numbers to identify the devices being connected, it is inherent that the fields in the control blocks indicate unique processor identification numbers).*

Claims 10 and 19: McDonald and Suzuki disclose the systems of **Claim 9** and of **Claim 18**, with McDonald further disclosing the operating system component using the function unit identifier to determine a local means storing for allocation *([0017], [0020] and [0043]) (Threads are dispatched to processors based partially on what is contained in memory attached to the processor. A process is assigned an ideal processor to which the operating system tries to schedule that process, then allocates memory for that program in the locally attached storage means until that means is exhausted).*

Claims 11 and 20: <u>McDonald</u> and <u>Suzuki</u> disclose the systems of **Claim 9** and of **Claim 18**, with <u>McDonald</u> further disclosing using the functional unit identifier for scheduling a program stored in a local means for storing*([0020], [0052] and [0053])* *(The control block contains "ideal processor" information for the thread, which is used in determining to which processor the thread should be scheduled).*

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a) <u>Abramson et al</u> (US Pat: 5,269,013) disclose a NUMA system in which portions of the operating system are stored on each memory storage and manages where memory is stored and accessed;

b) <u>Downer et al</u> (PG Pub: 2003/0131067) disclose the assigning of unique identification numbers to each processing group to be used in determining how memory should be allocated and processes scheduled within the system; and

c) <u>Kimmel et al</u> (US Pat: 6,105,053) disclose the use of threading groups being assigned to job processing/memory units based on memory needs and scheduling policies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Pantoliano Jr whose telephone number is (571) 270-1049. The examiner can normally be reached on Monday-Thursday, 8am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, James W. Myhre can be reached on (571)270-1065. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

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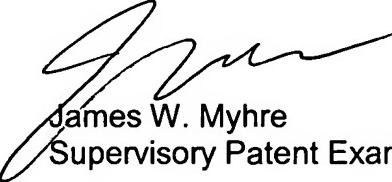
James W. Myhre
Supervisory Patent Examiner